

## CLAIMS

1. A method for transmitting data packets in a wireless communication  
 2 system in a channel sensitive manner, comprising:  
     repackaging a data payload into at least one subpacket;  
 4      generating at least one preamble payload, wherein the at least one  
     preamble payload corresponds to the at least one subpacket; and  
 6      spreading the at least one preamble payload to form at least one  
     preamble unit.
2. The method of Claim 1, further comprising the step of sequencing the  
 2 at least one preamble unit.
3. The method of Claim 2, wherein the step of sequencing the at least one  
 2 preamble unit is performed in accordance with a permutation pattern.
4. The method of Claim 2, wherein the permutation pattern comprise:  
 2      repeating the at least one preamble unit for a predetermined  
     repetitions; and  
 4      multiplying a portion of the at least one preamble unit by  $-1$ .
5. The method of Claim 1, further comprising the step of encoding the at least  
 2 one preamble payload, wherein the step of spreading the at least one  
     preamble payload is performed upon an encoded preamble payload.
6. The method of Claim 5, wherein a remote station identifier of the at  
 2 least one preamble payload is encoded separately from a remaining portion of  
     the at least one preamble payload.
7. The method of 5, wherein convolutional encoding is used in the step of  
 2 encoding the at least one preamble payload.

8. The method of 5, wherein block coding is used in the step of encoding  
the at least one preamble payload.

9. The method of 1, wherein the step of spreading the at least one  
preamble payload uses a plurality of orthogonal codes.

10. The method of 9, wherein the plurality of orthogonal codes are Walsh  
codes.

11. A method for optimizing the transmission of a data payload on a  
wireless communication system, comprising:

choosing an initial number of subpackets, wherein each subpacket will  
carry a substantially similar copy of the data payload;

determining a data rate corresponding to the initial number of  
subpackets;

determining a length for a preamble package in accordance with the  
data rate;

determining a fractional overhead, wherein the length of the preamble  
package is compared to the bits of the subpackets;

if the fractional overhead is greater than a predetermined threshold  
amount, then choosing a new number of subpackets; and

if the fractional overhead is less than or equal to the predetermined  
threshold amount, then generating the preamble package.

12. The method of 11, wherein the step of choosing an initial number of  
subpackets uses channel conditions as a basis for choosing an initial number  
of subpackets.

13. A method for optimizing transmission of a data payload, comprising:  
determining a data rate for the transmission of the data payload; and

using a look-up table to determine a corresponding packet size for the  
4 data payload and a preamble length, wherein the packet includes at least one  
subpacket and a preamble is attached to each of the at least one subpacket.

14. The method of 13, wherein the look-up table is one of a plurality of  
2 look-up tables, wherein each of the plurality of look-up tables correspond  
with a number of available Walsh channels.

15. An apparatus for generating a preamble for a data payload  
2 transmission, comprising:

an encoding element for receiving data payload transmission  
4 parameters;

a spreading element for receiving the encoded data payload  
6 transmission parameters and for spreading the encoded data payload  
transmission parameters; and

8 a mapping element for permuting the spread, encoded data payload  
transmission parameters.

16. The apparatus of Claim 15, further comprising a modulation element  
2 for modulating the encoded data payload transmission parameters before  
input into the spreading element.

17. An apparatus for generating a preamble to a data packet, comprising a  
2 processor coupled to a processor-readable storage element containing an  
instruction set executable by the processor to:

4 repackage a data payload into at least one subpacket;

generate at least one preamble payload, wherein the at least one  
6 preamble payload corresponds to the at least one subpacket; and

spread the at least one preamble payload to form at least one preamble  
8 unit.

18. An apparatus for generating a preamble to a data packet, comprising:

2 means for repackaging a data payload into at least one subpacket;  
means for generating at least one preamble payload, wherein the at  
4 least one preamble payload corresponds to the at least one subpacket; and  
means for spreading the at least one preamble payload to form at least  
6 one preamble unit.

19. The apparatus of Claim 18, further comprising means for sequencing  
2 the at least one preamble unit.

20. The apparatus of Claim 18, further comprising means for encoding the  
2 at least one preamble payload.

21. An apparatus for optimizing the transmission of a data payload on a  
2 wireless communication system, comprising:  
means for choosing an initial number of subpackets, wherein each  
4 subpacket will carry a substantially similar copy of the data payload;  
means for determining a data rate corresponding to the initial number  
6 of subpackets;  
means for determining a length for a preamble package in accordance  
8 with the data rate;  
means for determining a fractional overhead, wherein the length of the  
10 preamble package is compared to the bits of the subpackets; and  
means for deciding if the fractional overhead is greater than a  
12 predetermined threshold amount, then choosing a new number of  
subpackets; and if the fractional overhead is less than or equal to the  
14 predetermined threshold amount, then generating the preamble package.

22. An apparatus for generating optimized preamble structures,  
2 comprising:  
means for storing a look-up table;

- 4 means for determining a data rate for a packet, wherein the packet  
includes at least one subpacket and a preamble is attached to each of the at  
6 least one subpacket; and  
means for using the data rate for the packet to find a plurality of  
8 parameters on the look-up table, wherein the plurality of parameters include  
preamble lengths.

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